



Montana Department of
ENVIRONMENTAL QUALITY

MAILED
04-23-01

Judy H. Martz, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.state.mt.us

April 17, 2001

John Rundquist
City of Helena
316 N. Park Ave.
Helena, Montana 59623

RE: CITY OF HELENA CLASS II (INACTIVE) LANDFILL – LICENSE NO. 90
GROUND WATER MONITORING–REVIEW OF THE SEPTEMBER 2000,
QUARTERLY SAMPLING EVENT

Dear Mr. Rundquist:

According to the laboratory's "Sample Condition QA/QC Report", the ground water samples collected on September 21, 2000 at the City of Helena (inactive) Class II Landfill were received at the laboratory having a cooler temperature of 17.5 degrees Centigrade. This is 13.5 degrees higher than the accepted sample temperature for proper preservation of samples intended for volatile organic compound (VOC) analysis.

As implied in the site's Sampling and Analysis Plan and as stated in SW-846 and the RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, samples are required to be preserved at 4 degrees Centigrade for VOC analysis (see attached copies of the tables from these documents).

Therefore, VOC analytical data from the September 21, 2000 quarterly ground water sampling event is invalid. Re-sampling is encouraged however, since the City failed to submit the results from this quarterly sampling event within the 90 day-requirement [ARM 17.50.708(15)], the Program will not be able to require a re-sample for this event.

I can be contacted at the Permitting and Compliance Division, Community Services Bureau, Waste Management Section, phone (406)444-9538.

Sincerely,

Pat Potts – Environmental Specialist, Solid Waste Regulatory Program

Attachments: SW-846 Table 4-1, September 1994
RCRA TEGD, Table 4-1, pp. 111, 112, September 1986

cc: Jodi Bingham, P.E., Hyrometrics, 2727 Airport Road, Helena, MT 59601

RECEIVED

TABLE 4-1.
SAMPLE CONTAINERS, PRESERVATION, TECHNIQUES, AND HOLDING TIMES

Analyte Class	Container	Preservative	Holding Time
<u>Volatile Organics</u>			
Concentrated Waste Samples	125 mL widemouth glass container with Teflon lined lid	Cool, 4°C	14 days
<u>Liquid Samples</u>			
No Residual Chlorine Present	2 X 40 mL vials with Teflon lined septum caps	Cool, 4°C ¹	14 days
Residual Chlorine Present	2 X 40 mL vials with Teflon lined septum caps	Collect sample in a 125 mL container which has been pre-preserved with 4 drops of 10% sodium thiosulfate solution. Gently swirl to mix sample and transfer to a 40 mL VOA vial. ¹ Cool, 4°C	14 days
Acrolein and Acrylonitrile	2 X 40 mL vials with Teflon lined septum caps	Adjust to pH 4-5; cool, 4°C	14 days
Soil/Sediments and Sludges	125 mL widemouth glass container sealed with a septum	Cool, 4°C	14 days

¹ Adjust pH <2 with H₂SO₄, HCl or solid NaHSO₄. FOUR - 6

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

1000 - 8

TABLE 4-1

SAMPLING AND PRESERVATION PROCEDURES FOR DETECTION MONITORING^a

Parameter	Recommended Container ^b	Preservative	Maximum Holding Time	Minimum Volume Required for Analysis
<u>Indicators of Ground-Water Contamination^c</u>				
pH	T, P, G	Field determined	None	25 ml
Specific conductance	T, P, G	Field determined	None	100 ml
TOC	G, amber, T-lined cap ^e	Cool 4°C, ^d HCl to pH <2	28 days	4 x 15 ml
TOX	G, amber, T-lined septa or caps	Cool 4°C, add 1 ml of 1.1M sodium sulfite	7 days	4 x 15 ml
<u>Ground-Water Quality Characteristics</u>				
Chloride	T, P, G	4°C	28 days	50 ml
Iron	T, P	Field acidified to pH <2 with HNO ₃	6 months	200 ml
Manganese				
Sodium				
Phenols		4°C/H ₂ SO ₄ to pH <2	28 days	500 ml
Sulfate	T, P, G	Cool, 4°C	28 days	50 ml
<u>EPA Interim Drinking Water Characteristics</u>				
Arsenic	T, P	<u>Total Metals</u>	6 months	1,000 ml
Barium		Field acidified to		
Cadmium		pH <2 with HNO ₃		
Chromium			6 months	1,000 ml
Lead		<u>Dissolved Metals</u>		
Mercury		1. Field filtration (0.45 micron)		
Selenium		2. Acidify to pH <2 with HNO ₃		
Silver	Dark Bottle			
Fluoride	T, P	Cool, 4°C	28 days	300 ml
Nitrate/Nitrite	T, P, G	4°C/H ₂ SO ₄ to pH <2	14 days	1,000 ml

(Continued)

TABLE 4-1 (Continued)

SAMPLING AND PRESERVATION PROCEDURES FOR DETECTION MONITORING

Parameter	Recommended Container ^b	Preservative	Maximum Holding Time	Minimum Volume Required for Analysis
Endrin Lindane Methoxychlor Toxaphene 2,4 D 2,4,5 TP Silvex	T, G	Cool, 4°C	7 days	2,000 ml
Radium Gross Alpha Gross Beta	P, G	Field acidified to pH <2 with HNO ₃	6 months	1 gallon
Coliform bacteria	PP, G (sterilized)	Cool, 4°C	6 hours	200 ml
<u>Other Ground-Water Characteristics of Interest</u>				
Cyanide	P, G	Cool, 4°C, NaOH to pH >12. 0.6 g ascorbic acid ^f	14 days ^g	500 ml
Oil and Grease	G only	Cool, 4°C H ₂ SO ₄ to pH <2	28 days	100 ml
Semivolatile, nonvolatile organics	T, G	Cool, 4°C	14 days	60 ml
Volatiles	G, T-lined	Cool, 4°C	14 days	60 ml

^aReferences: Test Methods for Evaluating Solid Waste - Physical/Chemical Methods, SW-846 (2nd edition, 1982).
Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020.
Standard Methods for the Examination of Water and Wastewater, 16th edition (1985).

^bContainer Types:

P = Plastic (polyethylene)
 G = Glass
 T = Fluorocarbon resins (PTFE, Teflon®, FEP, PFA, etc.)
 PP = Polypropylene

(Continued)

TABLE 1. (continued)

COMPARISON OF MECHANISMS FOR POLYMERIZATION

Reaction	Initiation	Propagation	Termination	Transfer	Chain Transfer	Branching
Free Radical	Initiator decomposition	Radical addition to monomer	Radical-radical combination	Radical addition to polymer	Radical addition to polymer	Radical addition to polymer
Anionic	Initiator addition to monomer	Carbanion addition to monomer	Carbanion-carbanion combination	Carbanion addition to polymer	Carbanion addition to polymer	Carbanion addition to polymer
Cationic	Initiator addition to monomer	Carbocation addition to monomer	Carbocation-carbocation combination	Carbocation addition to polymer	Carbocation addition to polymer	Carbocation addition to polymer
Coordination	Initiator coordination to monomer	Monomer coordination to growing center	Coordination of two growing centers	Coordination of growing center to polymer	Coordination of growing center to polymer	Coordination of growing center to polymer

Reaction conditions: Temperature, 50°C; Time, 24 hours; Initiator concentration, 0.01 M; Monomer concentration, 1.0 M; Solvent, benzene.

Analysis: The polymer was analyzed by gel permeation chromatography (GPC) and infrared spectroscopy (IR). The GPC results show a narrow molecular weight distribution, indicating a controlled polymerization process. The IR spectrum shows characteristic absorption bands for the polymer structure.

INITIALS P³DATE 4/16/01SW OUTGOING CORRESPONDENCE 2001☐ NEW APPLICATION/LICENSE

Initial / Date

Mike D. _____

Janet H. _____

HAC _____

Rick T. _____

Jon D./ Other _____

☐ HEALTH OFFICER CARD

Initial / Date

Mike D. _____

Karen _____

HAC _____

☐ INSPECTIONS

Initial / Date

Pat C. _____

Janet H. _____

Karen _____

Rick T. _____

☐ CLOSURES

Initial / Date

Mike D. _____

Janet H. _____

Karen _____

HAC _____

Rick T./ Other _____

☐ FEES

Initial / Date

Mike D. _____

Janet H. _____

HAC _____

☐ COMPLAINTS

Initial / Date

Pat C. _____

Janet H. _____

Karen _____

☒ GROUND WATER

Initial / Date

Janet H. JH 04-17-01Pat C. PC 04/17Rick T. RT 4-19-01☐ GENERAL CORRESPONDENCE

Initial / Date

Pat C. / Mike D. _____

Janet H. _____

Rick T. _____

Jon D./ Other _____

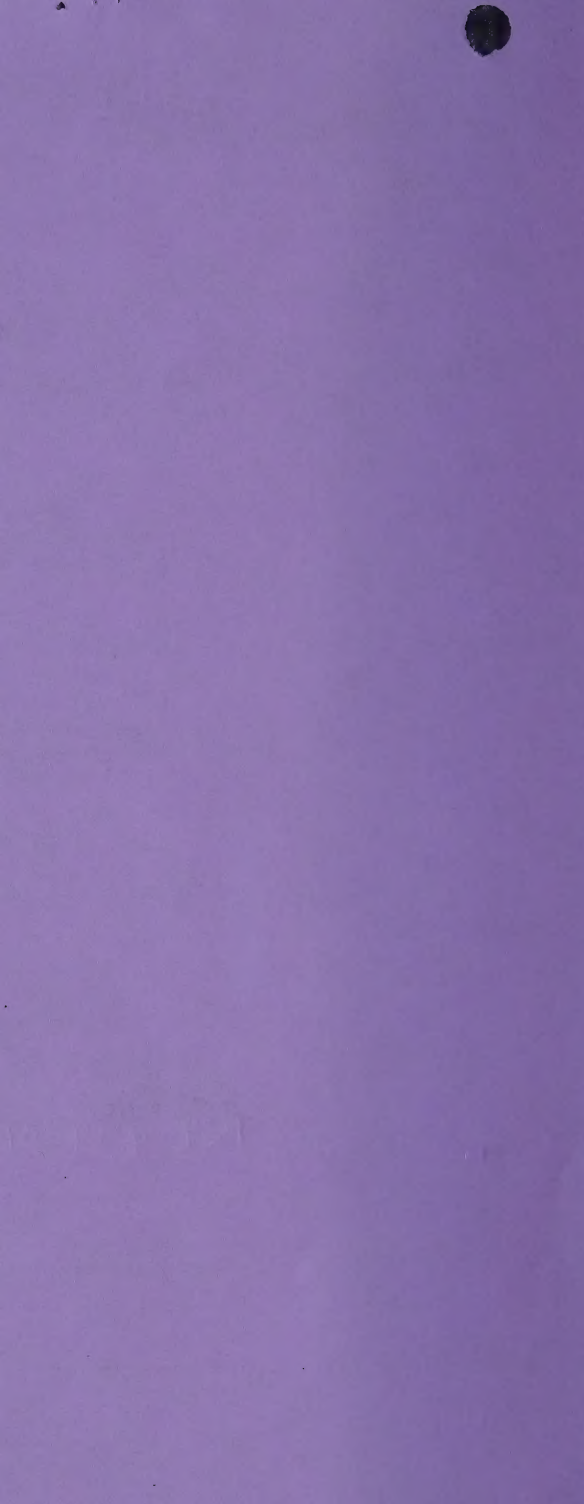
☐ MISCELLANEOUS

Initial / Date

FILE

Path

Lewis + Clark CoCity of Helena #90grd wtr mon (corresp)



**CLOSED
CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

HYDROMETRICS

**STATISTICAL EVALUATION OF SEPTEMBER
2001 AND DECEMBER 2001 GROUNDWATER
QUALITY DATA**

MARCH 2002

**IS LOCATED IN THE GROUNDWATER
MONITORING REPORTS ARCHIVE,
BOX NUMBER 4**

RECEIVED 4/5/2002

**CLOSED
CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

HYDROMETRICS

**RESULTS OF DECEMBER 2001
GROUNDWATER SAMPLING**

JANUARY 2002

**IS LOCATED IN THE GROUNDWATER
MONITORING REPORTS ARCHIVE,
BOX NUMBER 4**

RECEIVED 1/24/2002



Hydrometrics, Inc.®
consulting scientists, engineers, and contractors

*Lewis & Clark Co
City of Helena #90
grd wtr mon. (corresp)*
2727 Airport Road
Helena, MT 59601
(406) 443-4150
Fax: (406) 443-1252 E. Bldg.
(406) 443-0760 S. Bldg.
(406) 443-4155 W. Bldg.
www.hydrometrics.com

December 11, 2001

Ms. Pat Potts
Montana Department of Environmental Quality
Permitting and Compliance Division
WMD / SWP
P.O. Box 200901
Helena, MT 59620

RECEIVED

DEC 17 2001

MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

Dear Pat,

Enclosed for your review are the proposed monitoring sites and analytical schedule for the December 2001 semiannual groundwater monitoring at the Helena Landfill. There were two changes in the residential wells from the June 2001 sampling schedule. Well number 18 is in use and residents are strictly using City water. This well is being replaced with well number 17. Well number 84 is also no longer in use, but as there are no other wells in this area, this well will not be replaced in the sampling scheme. Please call if you have any questions or comments.

Sincerely,

Jodi Bingham, P.E.
Environmental Engineer/Chemist

c: John Rundquist, City of Helena

HELENA LANDFILL
SEPTEMBER 2001 SAMPLE SITE AND PARAMETER LIST

Site Name	Parameter
Monitoring Wells ⁽¹⁾	
83-6	Table 1
HL-94-1	Table 1
I-1	Table 1 VOC's only
HL-94-2	Table 1
HL-90-3	Table 1
HL-90-3 (duplicate)	Table 1
INF. GALLERY	Table 1 VOC's only
HL-94-3	Table 1
MPC-2	Table 1 VOC's only
HL-90-2	Table 1
HL-99-3	Table 1
EPA-1	Table 1
HL-99-2	Table 1
MPC-1	Table 1
MPC-5	Table 1
HL-99-1	Table 1
I-4	Table 1 VOC's only
HL-90-1	Table 1
Residential Wells:	
5	Table 1 VOC's only
17	Table 1 VOC's only
40	Table 1 VOC's only
48	Table 1 VOC's only
52	Table 1 VOC's only
57	Table 1 VOC's only
62	Table 1 VOC's only
90	Table 1 VOC's only
Quality Control:	
DI Blank	Table 1
Rinsate Blank	Table 1

(1) Monitoring wells are listed in the order to be sampled.

**CLOSED
CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

HYDROMETRICS

**GROUNDWATER QUALITY SAMPLING
DATA, SEPTEMBER 2001**

OCTOBER 2001

**IS LOCATED IN THE GROUNDWATER
MONITORING REPORTS ARCHIVE,
BOX NUMBER 4**

RECEIVED 11/1/2001

**CLOSED
CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

HYDROMETRICS

**STATISTICAL EVALUATION OF MARCH 2001
AND JUNE 2001 GROUNDWATER QUALITY
DATA**

AUGUST 2001

**IS LOCATED IN THE GROUNDWATER
MONITORING REPORTS ARCHIVE,
BOX NUMBER 4**

RECEIVED 9/17/2001



Hydrometrics, Inc.®

consulting scientists, engineers, and contractors

*Lewis & Clark Co
City of Helena #90
grd wtr mon. (corresp)*

2727 Airport Road

Helena, MT 59601

(406) 443-4150

Fax: (406) 443-1252 E. Bldg.

(406) 443-4155 W. Bldg.

(406) 443-0760 S. Bldg.

www.hydrometrics.com

RECEIVED

August 28, 2001

AUG 29 2001

Ms. Pat Potts
Montana Department of Environmental Quality
Permitting and Compliance Division
WMD / SWP
P.O. Box 200901
Helena, MT 59620

MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

Dear Pat,

Enclosed for your review are the proposed monitoring sites and analytical schedule for the September 2001 quarterly groundwater monitoring at the Helena Landfill. Well 48 is being sampled as part of the City's Action Plan for tetrachloroethene (PCE) in downgradient domestic wells. Please call if you have any questions or comments.

Sincerely,

S.E.D.

Sarah E. Day, E.I.
Civil Engineer

c: John Rundquist, City of Helena

*Crowley,
So, what about
the gc pond &
sprinkler sample(s)?
Where's my letter?
p31*

**HELENA LANDFILL
SEPTEMBER 2001 SAMPLE SITE AND PARAMETER LIST**

Site Name	Parameter
Monitoring Wells ⁽¹⁾	
HL-99-3	Table 1 VOC's only
HL-99-2	Table 1 VOC's only
HL-99-1	Table 1 VOC's only
HL-90-1	Table 1 VOC's only
MPC-1	Table 1 VOC's only
48	Table 1 VOC's only

(1) Wells are listed in the order to be sampled.

**CLOSED
CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

HYDROMETRICS

**ANALYTICAL RESULTS AND FIELD NOTES,
MARCH 2001 SAMPLING**

AUGUST 2001

**IS LOCATED IN THE GROUNDWATER
MONITORING REPORTS ARCHIVE,
BOX NUMBER 4**

RECEIVED 8/16/2001

**CLOSED
CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

HYDROMETRICS

**RESULTS OF JUNE 2001 GROUNDWATER
SAMPLING**

AUGUST 2001

**IS LOCATED IN THE GROUNDWATER
MONITORING REPORTS ARCHIVE,
BOX NUMBER 4**

RECEIVED 8/3/2001



Hydrometrics, Inc.®

consulting scientists, engineers, and contractors

Lewis & Clark Co
City of Helena #90
grd with mon (corresp)
2727 Airport Road
Helena, MT 59601
(406) 443-4150
Fax: (406) 443-1252 E. Bldg.
(406) 443-4155 W. Bldg.
(406) 443-0760 S. Bldg.
www.hydrometrics.com

June 5, 2001

Ms. Pat Potts
Montana Department of Environmental Quality
Permitting and Compliance Division
WMD / SWP
P.O. Box 200901
Helena, MT 59620

RECEIVED

JUN 07 2001

MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

Dear Pat,

Enclosed for your review are the proposed monitoring sites and analytical schedule for the June 2001 semiannual groundwater monitoring at the Helena Landfill. There are no changes from the December 2000 sampling schedule. Please call if you have any questions or comments.

Sincerely,

Jodi Bingham, P.E.
Environmental Engineer/Chemist

c: John Rundquist, City of Helena

**HELENA LANDFILL
JUNE 2001 SAMPLE SITE AND PARAMETER LIST**

Site Name	Parameter
Monitoring Wells ⁽¹⁾	
83-6	Table 1
HL-94-1	Table 1
I-1	Table 1 VOC's only
HL-94-2	Table 1
HL-90-3	Table 1
HL-90-3 (duplicate)	Table 1
INF. GALLERY	Table 1 VOC's only
HL-94-3	Table 1
MPC-2	Table 1 VOC's only
HL-90-2	Table 1
HL-99-3	Table 1
EPA-1	Table 1
HL-99-2	Table 1
MPC-1	Table 1
MPC-5	Table 1
HL-99-1	Table 1
I-4	Table 1 VOC's only
HL-90-1	Table 1
Residential Wells:	
5	Table 1 VOC's only
18	Table 1 VOC's only
40	Table 1 VOC's only
48	Table 1 VOC's only
52	Table 1 VOC's only
57	Table 1 VOC's only
62	Table 1 VOC's only
84	Table 1 VOC's only
90	Table 1 VOC's only
Quality Control:	
DI Blank	Table 1
Rinsate Blank	Table 1

(1) Monitoring wells are listed in the order to be sampled.



Hydrometrics, Inc.[®]
consulting scientists, engineers, and contractors

Lewis + Clark
City of Helena #9
grd wtr mon (cor)

2727 Airport Road
Helena, MT 59601
(406) 443-4150
Fax: (406) 443-1252 E. Bldg.
(406) 443-4155 W. Bldg.
(406) 443-0760 S. Bldg.
www.hydrometrics.com

May 9, 2001

Ms. Pat Potts
Environmental Specialist
Department of Environmental Quality
Permitting and Compliance Division
WMD/SWP
P.O. Box 200901
Helena, MT 59620

RECEIVED

MAY 10 2001

MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

RE: City of Helena Class II Inactive Landfill – License No. 90 Groundwater Monitoring
– Review of the September 2000, Quarterly Sampling Event

Dear Pat:

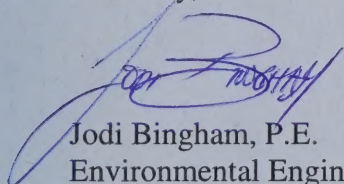
I received your letter dated April 17, 2001 stating that the VOC analytical data from the September 21, 2000 quarterly ground water sampling is invalid due to an exceedance in the accepted sample temperature for proper preservation of VOC samples. I have reviewed your letter, the laboratory's "Sample Condition QA/QC Report," and the water sampling forms submitted by the field sampling personnel. I have also discussed the procedures and protocol with the field technician who performed the work, the head of our Data Validation Department and personnel at Energy Labs. Following is a summary of the sampling protocol followed and EPA guidelines regarding VOC data review.

Seven VOC samples were collected between 0840 and 1300 on September 21, 2000 with water temperatures ranging from 9.3°C to 10.9°C. The samples were collected in 40-mL glass containers, preserved with sulfuric acid and sealed with zero headspace before being placed in a protective container in a cooler with ice. As the samples were to be taken to the lab the same day they were collected, Hydrometrics placed the samples on ice but did not wait until the samples were cooled to 4°C before submitting them to the laboratory. This has been accepted practice by the lab and Hydrometrics' sampling and data validation personnel, which is why no preservation violation was noted on the lab's sample condition report or Hydrometrics' data validation report. These samples were then hand-delivered to Energy Labs in Helena where the Chain of Custody was signed at 1500. The lab's "Sample Condition QA/QC Report" indicates the samples were received cold in the proper containers within the holding time; however, the lab noted that the samples were received at 17.5°C. It is our understanding that laboratory infrared temperature devices (which measure the surface temperature of the glass since VOC vials cannot be opened to measure the actual temperature of the water) may read falsely high temperatures due to environmental factors such as if the bottle has been recently touched or held by laboratory personnel.

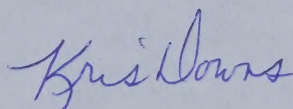
Although we believe that EPA guidelines were followed during sampling, sample temperature is not the only factor in determining the validity of VOC samples. In the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," for Volatile Data Review, Section I, Holding Times under subsection C, Criteria, it states that: "Water samples that have not been maintained at 4°C (+/- 2°C) and preserved to a pH of 2 or below should be analyzed within 7 days from sample collection." This means that VOC samples collected in glass vials with zero headspace and preserved with acid are still valid if analyzed within 7 days from sample collection even if the sample temperature exceeded 4°C. Laboratory reports indicate that these samples were analyzed on September 25, 2000, just 4 days after sample collection. It is therefore our opinion that this VOC data is valid and is deemed acceptable for purposes of the project as outlined in the work plan. We have conferred with John Standish of Energy Laboratories and he agreed with this opinion.

Based on the information presented, we conclude the VOC analytical data from the September 21, 2000 quarterly groundwater sampling event is valid in accordance with EPA guidelines and suitable for including with the City of Helena database. To further alleviate any concerns, Hydrometrics may consider holding samples on ice for up to 24 hours prior to submittal to the laboratory. If you have any questions concerning this letter, please don't hesitate to call.

Sincerely,



Jodi Bingham, P.E.
Environmental Engineer/Chemist



Kris Downs
QA/QC Supervisor

Attachment: Copy of cover page and page 6 of "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review."

c: John Rundquist, City of Helena
Pat Crowley, MDEQ
John Standish, Energy Laboratories

Superfund

USEPA CONTRACT LABORATORY PROGRAM NATIONAL FUNCTIONAL GUIDELINES FOR ORGANIC DATA REVIEW

HYDROMETRICS, INC.
2727 AIRPORT ROAD
HELENA, MT 59601
PHONE 406/443-4130

VOA

I. Holding Times

A. **Review Items:** Form I VOA [Form I LCV], EPA Sample Traffic Report and/or chain of custody, raw data, and SDG Narrative.

B. **Objective:**

The objective is to ascertain the validity of the analytical results based on the holding time of the sample from the time of collection to the time of analysis.

C. **Criteria:**

Technical requirements for sample holding times have only been established for water matrices.

The technical holding time criteria for water samples are as follows:

For non-aromatic volatile compounds in cooled (@ 4°C) water samples, the maximum holding time is 14 days from sample collection.

Maximum holding times for purgeable aromatic hydrocarbons in cooled (@ 4°C $\pm$ 2°C), acid-preserved (with HCl to pH 2 or below) water samples is 14 days from sample collection.

Water samples that have not been maintained at 4°C ($\pm$ 2°C) and preserved to a pH of 2 or below should be analyzed within 7 days from sample collection. If insufficient ice is used to ship samples, the laboratory may receive samples with no ice left in the cooler. Under these circumstances, the temperature of the samples may exceed 4°C.

NOTE: It is further recommended that volatile compounds in properly preserved (4°C $\pm$ 2°C) non-aqueous samples be analyzed within 14 days of sample collection.

The method maximum holding times, which differ from the technical maximum holding times, state that water and soil samples are to be analyzed within 10 days from the validation time of sample receipt (VTSR) at the laboratory.

English Essay

English Essay: Write a 500-word essay on the topic of the English language. The essay should be written in the first person and should include an introduction, a main body, and a conclusion.

Objectives:

The objective is to demonstrate the student's understanding of the English language and its history. The student should also demonstrate their ability to write in the first person and to use appropriate grammar and punctuation.

Technical details: The student should write the essay on a separate sheet of paper. The essay should be typed and double-spaced. The student should also include a title page and a reference page.

The student should also include a title page and a reference page.

The student should also include a title page and a reference page.

The student should also include a title page and a reference page.

The student should also include a title page and a reference page.

The student should also include a title page and a reference page.

The student should also include a title page and a reference page.



Hydrometrics, Inc.[®]
consulting scientists, engineers, and contractors

Lewis & Clark Co
City of Helena #4
groundwater corr
APC
2727 Airport Road
Helena, MT 59601
(406) 443-4150
Fax: (406) 443-1252 E. Bldg.
(406) 443-4155 W. Bldg.
(406) 443-0760 S. Bldg.
www.hydrometrics.com

March 7, 2001

RECEIVED

MAR 08 2001

Ms. Pat Potts
Montana Department of Environmental Quality
Permitting and Compliance Division
WMD / SWP
P.O. Box 200901
Helena, MT 59620

MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

Dear Pat,

Enclosed for your review are the proposed monitoring sites and analytical schedule for the March 2001 quarterly groundwater monitoring at the Helena Landfill. Well 48 is being sampled as part of the City's Action Plan for tetrachloroethene (PCE) in downgradient domestic wells. Please call if you have any questions or comments.

Sincerely,

Jodi Bingham, P.E.
Environmental Engineer/Chemist

c: John Rundquist, City of Helena

**HELENA LANDFILL
MARCH 2000 SAMPLE SITE AND PARAMETER LIST**

Site Name	Parameter
Monitoring Wells ⁽¹⁾	
HL-99-3	Table 1 VOC's only
HL-99-2	Table 1 VOC's only
HL-99-1	Table 1 VOC's only
HL-90-1	Table 1 VOC's only
MPC-1	Table 1 VOC's only
48	Table 1 VOC's only

(1) Wells are listed in the order to be sampled.

TABLE 1. SUMMARY OF DATA FOR THE LIST NUMBER 1, 1970

Year	Number of
1970	100
1971	100
1972	100
1973	100
1974	100
1975	100
1976	100
1977	100
1978	100
1979	100
1980	100

(The data are given in the table in the margin)